

## **REMARKS**

In the Office Action mailed October 27, 2004, the examiner rejected applicant's claims 1-3, 7-8, 10-11, 22-25, 29-30, 32-33 and 44-45 for alleged anticipation under 35 USC 102(b) in view of Nguyen, U.S. Patent 5,557,140. Applicant's remaining claims 4-6, 12-21, 26-28, 31 and 34-43 were indicated to recite allowable subject matter.

In response, applicant has amended independent claims 1 and 24 for purposes of reciting applicant's invention in more detail, and in a manner that is respectfully submitted to distinguish clearly and patentably from the cited art.

Accordingly, particularly for the reasons noted in the following remarks, claims 1-45 of this application are respectfully resubmitted for reconsideration and allowance.

### **Brief Discussion of Applicant's Invention as Claimed**

This application discloses and claims an improved rectifying charge storage device of the general type disclosed in commonly assigned U.S. Patent 6,414,543, namely, a combination rectifier and capacitor structure sharing a common conductor, but wherein this rectifying charge storage device additionally includes a "sensor" responsive to a selected or target "environmental parameter". In accordance with the invention, this added "sensor" responds variably to changes in the target parameter to alter electrical characteristics of the rectifying charge storage device so that these "changes in said electrical characteristics provide a detectable representation" of the target parameter.

Independent claims 1 and 24 of this application now recite, clearly and in express terms, the "rectifier" and "capacitor" structures sharing the "common conductor", in combination with the "sensor" as an additional element or component. In other words, applicant's claimed "sensor" comprises a component or structure which is in addition to the recited rectifier or capacitor structures. This additional "sensor" element or component is

specifically designed to respond to changes in the target parameter by altering the electrical characteristics of the device in a known or predictable and repeatable manner, so that the electrical characteristics can be monitored as a reliable representation of the target parameter.

By clearly reciting this “sensor” as an additional element or component in independent claims 1 and 24, *i.e.*, in addition to the recited rectifier and capacitor structures, applicant is positively claiming a combination that clearly differentiates from a rectifier structure alone and/or a capacitor structure alone, and any alleged inherent properties of such structures.

In this regard, applicant acknowledges that rectifier structures and/or capacitor structures may, under certain conditions, exhibit certain “inherent” properties (as asserted by the examiner) wherein electrical characteristics can change in response to temperature fluctuations. However, such “inherent” changes are nonlinear and unpredictable -- normally evidencing undesirable instability -- and are not useful as a “detectable representation of the environmental parameter” such as temperature. As such, applicant respectfully contends that such “inherent” properties do not correspond with applicant’s claimed additional “sensor” for providing such “detectable representation”, as recited in applicant’s independent claims 1 and 24. That is, such “inherent” properties do not and cannot provide the basis for an “output signal representative of the environmental parameter”, as recited further in applicant’s dependent claims 18 and 40 (which have been indicated to recite allowable subject matter).

Since the cited Nguyen reference does not disclose or suggest any additional “sensor” of the type recited in applicant’s claims, namely, an additional “sensor” that responds to changes in the target parameter to alter electrical characteristics in a known and predictable manner that can be used as a reliable representation of the target parameter, claims 1-45 as now presented are respectfully submitted to be in proper condition for allowance.

### **Discussion of the Cited Art**

In the Office Action, the examiner has relied upon the cited Nguyen reference, U.S. Patent 5,557,140, to support the rejection of claims 1-3, 7-8, 10-11, 22-25, 29-30, 32-33 and 44-45 for alleged anticipation under 35 USC 102(b). The remaining claims were indicated to recite allowable subject matter.

According to the examiner, Nguyen shows an integrated rectifier and capacitor structure wherein rectifying and capacitor elements share a common conductor. Nguyen clearly fails, however, to disclose or suggest any discrete or identifiable additional "sensor" used for monitoring changes in a target environmental parameter. Nevertheless, the examiner asserts that temperature fluctuations "inherently influence" the electrical characteristics of integrated circuit devices, whereby the examiner argues that Nguyen "inherently" provides a "sensor". Office Action, p. 2, para. 2. Applicant notes that a discussion of inherent temperature influence is not found in the Nguyen reference.

Applicant acknowledges that certain temperature changes can, in some instances and for some types of devices, alter electrical characteristics. However, such alterations tend to be unstable, unpredictable, and therefore incapable of providing any meaningful representation of temperature changes that can be translated reliably and accurately to a temperature-indicative output signal.

In this regard, applicant notes that independent claims 1 and 24 of this application clearly and expressly recite a "sensor" as an additional element or component which, although incorporated directly into a rectifying or capacitor component in various embodiments, is specifically designed:

"for altering the electrical characteristics of the unitary element as a variable function of the environmental parameter whereby changes in said electrical characteristics provide a **detectable representation** of the environmental parameter" (emphasis added).

By this language, independent claims 1 and 24 clearly differentiate from a mere combination of rectifier and capacitor structures, and any "inherent" yet unstable changes in electrical characteristics of the type resulting, e.g., from temperature fluctuations in such integrated circuit device. Such "inherent" instabilities due to temperature fluctuations do not equate with applicant's claimed additional "sensor" element or component, nor does it anticipate, disclose or suggest providing a "detectable representation" of actual temperature changes. Instead, the "inherent" characteristic relied upon by the examiner to support the rejection merely indicates that the integrated circuit device has gone into an unstable, undesirable mode of operation.

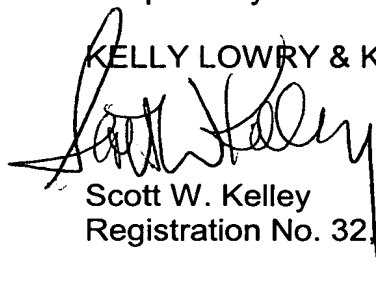
Accordingly, claims 1 and 24 together with their respective groups of dependent claims 2-23 and 23-45 are respectfully submitted to distinguish clearly and patentably from the Nguyen reference.

### **Conclusion**

In conclusion, in view of the foregoing claim revisions and accompanying remarks, claims 1-45 are believed to be in proper form for allowance. A formal Notice of Allowance is believed to be in order, and is therefore respectfully requested.

Respectfully submitted,

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